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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,498

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EXAMINER

LEUNG, JENNIFER A

ART UNIT

PAPER NUMBER

1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,498	Applicant(s) BOSCH ET AL.	
	Examiner JENNIFER A. LEUNG	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2007 and 10 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4, 20 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4, 20 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application on December 10, 2007, after a final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action is withdrawn pursuant to 37 CFR 1.114. Applicant's submission on November 14, 2007 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruppel et al. (EP 0 534 195) in view of Hamilton (US 3,384,667).

Regarding claim 4, Ruppel et al. (see FIGs. 1, 2; English Abstract and Machine Translation) discloses a reactor suitable for conducting the reaction of C₁₋₄ alkanols with

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ammonia for preparing alkylamines (i.e., *Herstellung von Methylaminen aus Methanol und Ammoniak*, translated as the production of methylamine from methanol and ammonia; see column 1, lines 4-20; column 4, lines 24-37 and claim 20), the reactor comprising:

a fixed bed of catalyst **01**, present as a single contiguous fixed bed (i.e., located within the reactor, in the space between the annular distributor **07** and the collecting pipe **10**); and interior tubes through which a coolant may pass (i.e., tubes **03** of heat exchanger tube bank **02**, with coolant, e.g., water, passing from distributor **04** to collector **05**).

The apparatus of Ruppel et al. is the same as the instantly claimed apparatus, except that Ruppel et al. is silent as to the fixed bed of catalyst **01** comprising a "shape-selective" catalyst.

Hamilton teaches a catalyst suitable for producing alkylamines from the reaction of ammonia with alcohol (see abstract; column 1, lines 37-45), wherein the catalyst comprises a "shape-selective" catalyst including natural or synthetic crystalline aluminosilicates or zeolites, such as clinoptilolite, ferrierite, chabazite, mordenite, Y-zeolite, etc. (see column 2, lines 33-61).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to select the shape selective catalyst taught by Hamilton for the catalyst **01** in the apparatus of Ruppel et al., because the shape selective catalyst of Hamilton would have been considered a conventional catalyst in the art for catalyzing the reaction of methanol and ammonia for the production of methylamine, and furthermore, the shape selective catalyst of Hamilton advantageously controls the reaction to favor the formation of mono- and di-substituted amine products, which are commercially preferred over the tri-substituted amine products (see column 1, lines 45-67).

Please note that the recitation with respect to the coolant, wherein "... cooling is carried

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out by means of boiling water cooling such that the difference between outlet temperature and inlet temperature of the reactor in less than 35 °C,” does not impart patentable weight to the claim, since the coolant is not considered an element of the apparatus, and the temperature differential is considered a process limitation. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims. *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art.

Regarding claim 20, the recitation that “monomethylamine and dimethylamine are prepared from the reactor” adds no further patentable weight to the claim, since the monomethylamine and dimethylamine, i.e., products of the reaction, are not considered elements of the apparatus. In any event, Ruppel et al. discloses that the reactor is structurally capable of producing methylamine, and Hamilton teaches that the shape-selective catalyst preferentially catalyzes the production of mono- and di-substituted amines (see comments above).

3. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruppel et al. (EP 0 534 195) in view of Hamilton (US 3,384,667), as applied to claim 4 above, and further in view of Lahne et al. (US 4,339,413).

Ruppel et al. discloses that the reactor comprises interior tubes **03**, but does not specifically state that the tubes have a cross section which does not have any corners, e.g., a

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circular or ellipsoidal cross-sectional shape, or that the tubes have a cross-sectional diameter from 1 to 5 cm.

Lahne et al. teaches a reactor (see FIG. 1) containing a fixed bed of catalyst **4** and interior tubes **5** through which a coolant may pass. In particular, Lahne et al. teaches that the tubes (designated as **13** in FIG. 2) have a circular cross section and a cross-sectional diameter from 1 to 5 cm (i.e., the internal diameter **14** of the tubes **13** is between 4 and 50 mm, and preferably between 10 and 30 mm; see column 4, line 63 to column 5, line 8).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the tubes in the modified apparatus of Ruppel et al. to comprise a circular cross-section and a cross-sectional diameter between 1 and 5 cm, because the configuration would have been considered conventional in the art, as evidenced by Lahne et al., and hence, no cause for patentability here. Furthermore, such configuration would have provided efficient cooling of the fixed catalyst bed, while still allowing for the reactor to be made comparatively small, as taught by Lahne et al. (see, e.g., column 1, line 67 to column 2, line 25).

Response to Arguments

4. Applicant's arguments with respect to the rejection of claims 4, 20 and 23-25 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the newly applied prior art references, above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571)272-1449.

The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797